

The Bay Academy Lesson Plan Template

Topic: Wind & Pollution

Grade Level: 7th Grade Earth Science (Regents)

Essential Question

(Domain 1: Planning and Preparation-Component 1c: Designing Coherent Instruction)

How can we apply our model plate tectonics to determine the cause of tremors/earthquake?

Standards

(Domain 1: Planning and Preparation- Component 1a: Demonstrating Knowledge of Content and Pedagogy)

2.1j Properties of Earth's internal structure (crust, mantle, inner core, and outer core) can be inferred from analysis of the behavior of seismic waves (including velocity and refraction)

2.1l The lithosphere consists of separate plates that ride on the more fluid Asthenosphere and move slowly in relationship to one another

Standard 6 Key Idea: debate the effect of human activities as they relate to quality of life on Earth systems (global warming, land use, preservation of natural resources, pollution)

Vocabulary (Domain I: Planning and Preparation - Component 1e: Demonstrating Knowledge of Students.)	Prep Work/Materials (Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction-Component 3c: Instruction Engaging Students in Learning)	Cross Curricular Connection (Domain I: Planning and Preparation - Component 1a: Demonstrating Knowledge of Content and Pedagogy, Component 1b: Demonstrating Knowledge of Students.)
Plate Boundaries Epicenter Earthquakes Fracking	Google Slides Article Handouts (if done analog) Computers / Internet (if done digitally)	English Fine Arts Latin Math Physical Education Science Social Studies Talent Area

Do Now/ Warm-Up (5 minutes)

(Domain I Planning and Preparation-Component 1e: Designing Coherent Instruction, Domain 3: Instruction - Component 3b: Using Question and Discussion techniques Domain 3: Instruction - Component 3c: Engaging Students in Learning)

Students will be asked to describe the relationship or pattern between plate boundaries and earthquakes. (Students have in previous inquiry labs discovered that earthquakes occurrences match up with the location of plate boundaries). <http://folkworm.ceri.memphis.edu/recenteqs/>

Utilization of UDL
Utilization of leveled questions
Utilization of student's prior
knowledge
Other

Mini Lesson (10 minutes)

(Domain I Planning and Preparation-Component 1e: Designing Coherent Instruction, Domain 3: Instruction - Component 3b: Using Question and Discussion techniques, Domain 3: Instruction - Component 3c: Engaging Students in Learning)

Students will be shown a map of recent earthquakes. This map will indicate that there are many earthquakes occurring in the midwestern United States. Students will be asked to identify the plate boundary that causes the earthquakes. Students will quickly realize that there isn't a boundary close, which will foster a curiosity because it contradicts previous discoveries. We must investigate!

Promotes higher-level thinking
Promotes higher order questions
Explicitly models expectation
Permit and extends student discussion

Active Engagement Embedded in Small Group/ Independent Work (25 minutes)

(Domain I Planning and Preparation-Component 1e: Designing Coherent Instruction, Domain 3: Instruction - Component 3b: Using Question and discussion techniques Domain 3: Instruction - Component 3c: Engaging Students in Learning)

Student pods will be given different an article that presents evidence or stories of earthquakes occurring in the midwest. Students will analyze the article for evidence of natural phenomena or fracking. As students find a particular piece of evidence that may explain the current quakes in the midwest students will write the quote or paraphrase on a sticky note. That sticky note will be added to a board in the front of the room. Once students have finished analyzing the text a "take a stand" protocol will be used. Students will line up on a neutral midpoint of the room. Evidence written on sticky notes by students will be read out loud to the class. If students feel that evidence supports natural phenomena they will take a step or steps towards the natural phenomena side. If they feel that evidence supports that fracking is that cause they will take a step or steps to the fracking side. This will continue until evidence has been repeated or exhausted. Students will have a seat and begin the exit slip.

Opportunities for students to initiate higher-order questions & extend/enrich the discussion
Open-ended questions with multiple correct answers
Fully aligned with instructional outcomes
Permits student choice
Appropriately paced to allow time needed to intellectually engage with and reflect upon learning
Students serve as resources for one another
Student centered group work

Utilization of Webb's DOK and UDL

(Domain 1 Planning and Preparation- Component 1b: Demonstrating Knowledge of Students, 1e: Designing Coherent Instruction, Domain 3 Instruction - Component 3b: Using Question and Discussion techniques)

Tier Three (DOK 1)	Tier Two (DOK 2 & 3)	Tier One (DOK 4)
"Students will <u>identify</u> the cause or connection between plate boundaries and earthquakes"	" <u>Cited Evidence</u> to assist in creating an argument for the cause of earthquakes in the midwest"	"Students will <u>critique evidence</u> to decide whether earthquakes in the midwest are tied to natural phenomena or fracking"

Reflect and Connect/ Link (Summary) (7 minutes)

(Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction - Component 3c: Engaging Students in Learning, Domain 3 Instruction- Component 3d: Using Assessment in Instruction)

Students will complete an exit slip of what they believe is that strongest point made. "What is the tipping point of evidence that led you to your final stand?" Exit slip should include a quote or paraphrasing of that evidence.	Opportunity for students to consolidate understanding
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Assessment (*Formative or Summative*)

(Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction- Component 3c: Engaging Students in Learning, Domain 3 Instruction- Component 3d: Using Assessment in Instruction)

Formative assessment will occur through listening and monitoring students conversations as they complete their lab discussion. The exit slip will be graded for evidence.	<p>Integrated into instruction</p> <p>Students contribute to assessment criteria</p> <p>Students self-assess & are aware of characteristics of high-quality work</p> <p>Specific & timely feedback</p> <p>Set child-friendly goals with students</p>
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Student Grouping Utilizing Data

(Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction- Component 3d: Using Assessment in Instruction)

Students are grouped based on pre-assessment data of the Dynamic Earth unit.	<p>Learning Styles</p> <p>Pre-Assessment</p> <p>State Exam/ Summative Assessment</p> <p>Smart Goal</p> <p>Other _____</p>
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Accommodations for Students ELL, IEP/ 504 and/or Accelerated

(Domain 1: Planning and Preparation- Component 1b: Demonstrating

Accommodations for lower level learners may be provided in the preparation of which articles are given to groups. These articles will have stronger examples of text features, headings, and annotated pictures to use as resources or "bread crumbs"

Accommodations for higher level learners may be provided in the differentiated task of searching for their own articles or evidence using computers in the classroom. Students may evaluate the abundance of either type of evidence to help support their arguments and decisions.